USER MANUAL

North America

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Introduction

Congratulations on your purchase of the Yacht Sentinel monitoring system. The system will provide you with "Priceless Peace of Mind"®.

This unit offers multiple levels of monitoring and security that can be customized to fit whatever your needs might be. The unit is shipped pre-programmed in its most popular user configuration to accommodate ease of installation with maximum function. We recommend reading the "Quick Start Guide" portion of the Installation section of this manual to acquaint yourself with the basic functions of the unit and its installation. Further along in the manual there is more detailed information that will explain how to customize the functions to suit other monitoring parameters.

Installation

Yacht Sentinel – Quick Start Guide

Your Yacht Sentinel Unit comes preprogrammed with the basic functions, SIM Card inserted and unit connection phone number assigned. You must have upon purchase, set up your monitoring account with Yacht Watchman International.

BASIC FUNCTIONS AND UNIT OVERVIEW

- **Motion Sensor –** Use in enclosed area to detect motion.
- **Bilge 1 –** Used to detect a water level. Can be bilge or high water monitor
- **Bilge 2 –** Used to detect a water level. Can be bilge or high water monitor
- **Hatch Sensor –** Detects opening of door or hatch. Can also be used for equip. theft monitor
- **Battery Sensor –** Detects status of battery powering Yacht Sentinel unit
  or
- **Shore Power Sensor –** Detects status of shore power when unit powered by 120v adapter

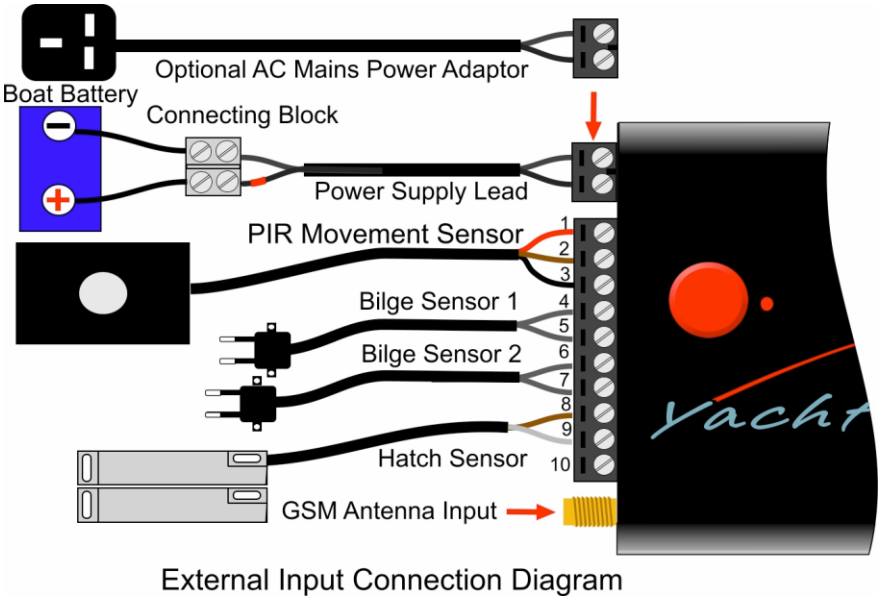


Figure 1

External Connections

Yacht Sentinel has an external connector that enables the connection of power and sensors. If you look at the External Connection Diagram on page 18, you will see how the connections are arranged when in standard mode. It is quite easy to add other sensors in place of those shown, such as pressure mats, tilt sensors, lanyards, etc. to monitor a wide range of possible events. Likewise there are three external outputs one external temperature sensor and two 'clean contact' outputs for switching other devices. See page 19 for output wiring diagram.

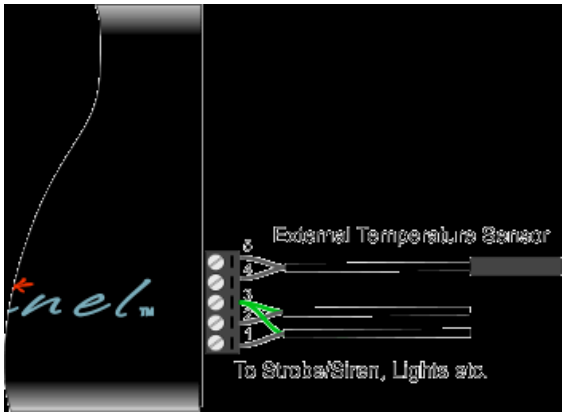


Figure 2

LOCATING UNIT

Install the unit on a flat surface with the top facing directly up to the sky to ensure the best connection with GPS satellites. If you need to ensure that the unit does not move around excessively, then please use either double-sided tape or Velcro to fix it to a surface.

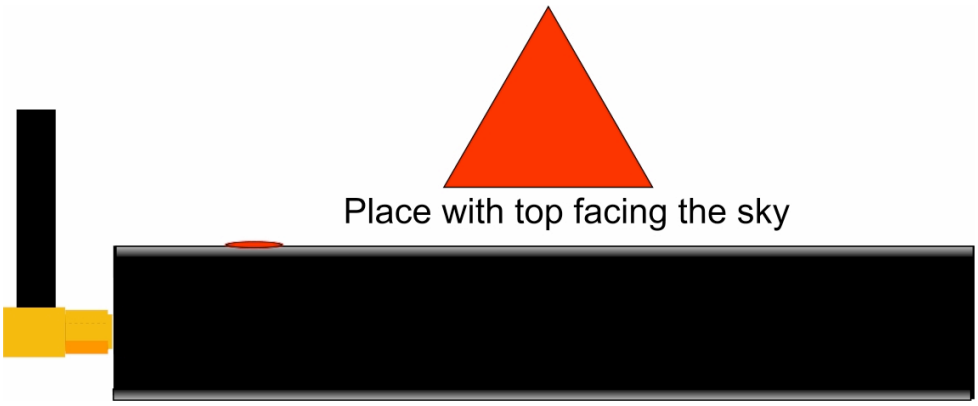


Figure 3

SENSORS

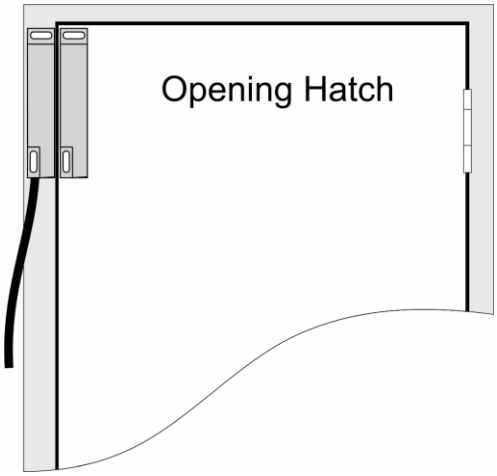
Bilge Sensors

Bilge sensors are connected as shown in the 'External Connection Diagram'. Ensure you make a note of which sensor is placed in which part of the bilge, as warnings will use these terms. Please make sure that you don't position the sensors too close to the existing bilge level so that you don't get false warnings. A single sensor has to be immersed in water for 1 minute before a bilge alarm is issued.

Hatch Sensor

Please ensure that the hatch sensor is connected as shown in the 'External Input Connections' Diagram. The Hatch Sensors consist of one connected component and one free component. The free component has an internal magnet that is detected by the connected component. When the free component moves away from the fixed component then an alarm is registered. It is therefore important that with the hatch in a closed position the fixed and free components are side by side

Hatch Sensors mounted on the hatch door frame



Note: It is possible to connect multiple contact sensors in parallel, with the first contact sensor having a 10k ohm tamper resistor across the output and subsequent contact sensors having no tamper resistors fitted.

Figure 4

Infra-Red Movement Sensor

This sensor is designed to detect any movement by using heat sensing. Any person entering the PIRs detection area will be detected as a moving heat source by the PIR. In order to reduce the current consumption of the PIR, it will turn on detection once every second. The detection range is 4 meters at an angle of 90°. The IR sensor obtains it's power from the supply input, so the PIR is connected to both the supply pair connector and one of the inputs to the hatch sensor. Figure 1 on page 4 shows a diagram of how the Infra-Red movement sensor is connected to Yacht Sentinel.

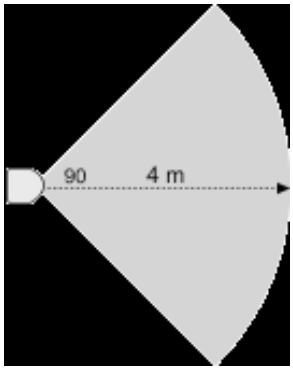


Figure 5

Please place the PIR movement sensor so that the detection zone (as shown above) covers the points of entry into the boat. Make sure wire connections are consistent with diagram on page 4 and 18. Crossing of wires will damage unit and sensor.

Connections:

Please connect the PIR movement Sensor as shown below:

red wire - screw connector 1
brown wire - screw connector 2
black wire - screw connector 3

INTERNAL BATTERY CONNECTION

Please be aware that we send Yacht Sentinel with the internal battery disconnected. Please open the unit at the 'seam' by gently inserting a knife and twisting until the unit 'pops' open. You will see the free battery connector. Please plug this into the adjacent socket.

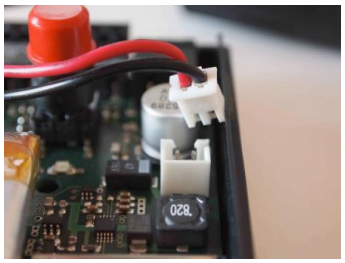


Figure 6a

Figure 6b

EXTERNAL POWER CONNECTION

Yacht Sentinel comes with a battery supply lead provided, or with an optional AC mains adaptor power supply lead. The unit operates on 12-24v DC supplied by either your vessel / vehicle battery or 120v AC via the optional adapter. Both supply lead connectors use the supply socket shown. All supply leads come with the connector already attached, **please do not remove the connectors from their leads as the connector is designed to only fit the supply socket. If you wish to use mains supply you MUST use the power adaptor unit.**

DO NOT AT ANY TIME connect the free end of the battery supply lead to 120 or 240vAC mains supply as this will damage the unit.

INSTALLATION CHECK LIST √

- ◯ **Confirm monitoring is on at Yacht Watchman**
- ◯ **Unit mounted in dry location**
- ◯ **Unit mounted with top up**
- ◯ **Unit secured to prevent movement**
- ◯ **Wire and connect sensors prior to power connection (fig.1, pg.4)**
- ◯ **Sensors mounted securely**
- ◯ **Internal battery connected (fig.6a & 6b, pg.7)**
- ◯ **Connect external power wires (best for wires to be de-energized during connection)**
  Important: See Warning Above
- ◯ **Initialize Unit (follow procedures page 9 – 14)**

INSTALLATION TIPS

- **Run wires where they will not be subject to damage or getting snagged during normal operation or routine maintenance.**
- **Protect all connections with an anti corrosive (make sure it will not harm plastics and is safe for electronics)**
- **You may want to make the power connection via fuse, pull apart connectors or a hidden switch, in the event you need to completely power down the unit. This would also require disconnecting the internal battery**
- **All sensor wires can be extended if needed. Make all splices with heat shrink connectors or tubing to protect them from elements**
- **Do not place bilge sensors below the effective activation level of float switches unless you want to be notified before the pump is activated. This could cause an abundance of alerts if your bilge is subject to constant water intrusion from rain, leaky through hulls or dripping stuffing boxes.**
- **Place motion sensor where it will best indicate intrusion within the 4 meter (12 ft approx), 90 deg. Range**
- **Make sure PIR wire connections are consistent with diagram on page 4 and 18. Crossing of wires will damage unit and sensor.**
- **Use adhesive tapes in dry locations only, not subject to high temperatures.**
- **Magnet side of hatch sensor (side without wires) can be mounted in any direction as long as when in the closed position, it is parallel and flush with the connected component. Shims or mounting bases may need to be fabricated to align mounting heights.**

Initializing Unit

POWER UP UNIT

The *Yacht Sentinel* can easily be switched on and off by pressing the button on top of the case. To switch on the device, press the button briefly. The LED will flash 3 times to indicate that the *Yacht Sentinel* is switched on. To switch off the device, press and hold the button for at least 3 seconds. The LED will flash 3 times to indicate that the *Yacht Sentinel* is now switched off.

Note: Due to the internal design of the *Yacht Sentinel*, it is only possible to switch off the device if no external power is applied. Otherwise you cannot switch off the *Yacht Sentinel*.

Note: It is possible that the *Yacht Sentinel* will switch on automatically if you connect it to an external power supply. This is due to the internal battery loader which ensures that the internal battery is fully charged each time.

Note: It is possible for the internal battery of the *Yacht Sentinel* to become fully discharged if the device is switched off for a long period (several weeks). If you now connect the *Yacht Sentinel* to the power supply, the device enters a special charge phase in order to charge the battery. During this phase, the GSM and GPS are completely switched off and the LED flashes at about 1 Hz. The *Yacht Sentinel* automatically enters normal operating mode when the internal battery reaches a specific charge threshold. The period required for the *Yacht Sentinel* to enter normal operating mode is dependent on the temperature, the internal battery and the external power supply. Values are typically 2 – 3 hours.

LED Flashing Codes

The *Yacht Sentinel* uses different flashing codes of the LED to indicate the current state of the GSM module. (shown next page)

LED	GSM	GPS
1 x red	The *Yacht Sentinel* is registered (logged in)	A GPS position is recognized and ready to use.
2 x red	The *Yacht Sentinel* is registered (logged in) and ready to use.	A GPS position is not recognized
3 x red	The *Yacht Sentinel* is not registered in the GSM network.	
Fast flashing	The *Yacht Sentinel* is receiving or transmitting an SMS.	
Slow flashing	The internal battery is in low voltage state and it should be loaded by the external voltage.	The GSM module cannot be used in this state.

CONNECTING WITH UNIT

To communicate with the unit and to receive messages from the unit requires a cell phone with text messaging capabilities. Communications from the unit, as well as communications from you to the unit will be by text messaging.

Call Your Unit

- Dial the phone number provided to you with the unit
- Connect to the function you wish to view:
  Parameters – This allows you to view the existing parameters of your system
    - Enter "4444, parameter?" (4444 is default password. See "Change Password" to change)
    - You should see the following on your phone display:

```
YACHT Sentinel
MY BOAT
MMSI=680038636
MASTER1=17725551234
MASTER2=NA
MASTER3=NA
ALARM1=OFF,NO,PIRALARM
ALARM2=OFF,BILGE,BILGEALARM
ALARM3=OFF,BILGE,BILGEALARM
ALARM4=ON,NO,HATCHALARM
OUT1=ON
OUT2=ALARM1
TEMPALARM=ON
TEMPMAX=70
TEMPMIN=-2
SUPPLYALARM=ON
BATT=12
MOVEALARM=OFF
RADIUS=20
ANCHOR=OFF
SWING=20
```

Parameters Description

SMS text	Description
`YACHT Sentinel`	Device logo
`MY BOAT`	Name of the boat
`MMSI=68003836`	The MMSI number set by the user (default 000000000)
`MASTER1=17725551234`	Master no. 1 (an alarm SMS will be sent to this phone number)
`MASTER2=NA`	Master no. 2 (an alarm SMS will be sent to this phone number)
`MASTER3=NA`	Master no. 3 (an alarm SMS will be sent to this phone number)
`ALARM1=ON,NO,PIRALARM`	Indicates that the PIR motion alarm is enabled
`ALARM2=ON,BILGE,BILGEALARM`	Indicates that the bilge alarm is enabled
`ALARM3=ON,BILGE,BILGEALARM`	Indicates that the bilge alarm is enabled
`ALARM4=OFF,NO,HATCHALARM`	Indicates that the hatch alarm is not enabled
`OUT1 = ON`	Indicates that output 1 in closed (switched)
`OUT2 = ALARM1`	Indicates that output 2 will operate if the PIR alarm is activated
`TEMPALARM=YES`	Indicates that the temperature alarm is enabled
`TEMPMAX=70`	Threshold for the high temperature alarm in °C
`TEMPMIN=-2`	Threshold for the frost alarm in °C

(continued next page)

(Parameters Description continued)

SUPPLYALARM=ON	Indicates that the battery alarm is enabled
BATT=12	12 V battery type used
MOVEALARM=OFF	Indicates that the move alarm is enabled
RADIUS=20	Gives the range in meters for the move alarm
ANCHOR=OFF	Indicates that the anchor alarm is enabled
SWING=20	Gives the range in meters for anchor swing

Status – Lets you see the actual status of battery states, position, course and speed.

- Enter "4444, status?" (4444 is default password. See "Change Password" to change)
- You should see the following on your phone display:
  (Note: This is an example. Your display may differ depending on your parameters:

```
YACHT Sentinel
MY BOAT
MMSI=680038636
FW=20090720
GSM=-89dbm
BOATBATT=11.7V
VBATT=4.2V
TEMP=25
GPSFIX=YES
TIME=11:26:35
DATE=31-05-12
LAT=52 06.4445N
LONG=008 39.8726E
SOG=33
COG=74
```

Status Description

SMS text	Description
YACHT Sentinel	Device logo
MY BOAT	Name of the boat
MMSI=680038636	The MMSI set by the user (default 000000000)
FW=20090720	Firmware version
GSM=-89dbm	GSM level
BOATBATT=11.7V	Voltage of the boat battery / external power supply **Note**: If BATT is set to OFF then the Yacht Sentinel will write SHOREPOWER=YES/NO in the SMS instead of BOATBATT.
VBAT:4.05V	Voltage of the internal battery
TEMP:25	Temperature measured in °C
GPSFIX:YES	YES' if the device can receive the GPS position. Otherwise NO
TIME=15:26:35	Time when GPS was identified (GMT)
DATE=15-11-12	Date when GPS was identified (date-month-year)
LAT:52 06.4445,N	Latitude
LONG:008 39.8726,E	Longitude
SOG:33	Speed over ground measured in knots
COG:74	Course over ground

Change Password

Proceed with the following steps to reset the password for SMS commands to the default value of 4444:

1. The Yacht Sentinel must be switched on and registered to the GSM network

2. Phone the Yacht Sentinel

3. The LED begins to flash at max 30 seconds

4. Push the red button once during the call

5. Yacht Sentinel will hang up the call

6. The Yacht Sentinel sets the password to 4444 and sends an SMS as notification to all masters

7. Now you can set a new password with the command NEWPWD.

8. After the user resets the password, all masters will receive the following SMS as notification that the password is set to the default value:

-=PASSWORD-RESET=-
YACHT SENTINEL
MY BOAT
MMSI=680038636

UNITS COMMUNICATION WITH YOU

Alarm SMS

The alarm SMS will be sent automatically by the device to the numbers at *Master1*, *Master2* and *Master3*. The device will try to resend the SMS to the destination every 30 seconds until it is successful.

Alarm SMS from the *Yacht Sentinel* to the masters (contact phone numbers) Ex:

```
<Alarm source>
YACHT Sentinel
MY BOAT
MMSI=680038636
BOATBATT=11.6V
VBATT=4.2V
TEMP=25
GPSFIX=YES
TIME=15:26:35
DATE=05-07-2012
LAT=52 06.4533,N
LONG=008 39.8711,E
SOG=33
COG=74
```

Alarm Description

SMS text	Description
<Alarm source>	Indicates the type of alarm (see next table)
YACHT Sentinel	Device logo
MY BOAT	Name of the boat
MMSI=68003836	MMSI is set by the User (default 000000000)
BOATBATT=11.6V	Voltage of the boat battery / external power supply
VBAT:4.2V	Voltage of the internal battery
TEMP:25	Temperature measured in °C
GPSFIX:YES	YES' if the device can receive the GPS position, otherwise NO
TIME=15:26:35	Time when GPS was identified (GMT time)
DATE=15-11-12	Date when GPS was identified (day-month-year)
LAT:52 06.4445,N	Latitude
LONG:008 39.8726,E	Longitude
SOG:33	Speed over ground in knots
COG:74	Course over ground

The following table shows the alarm indication for each alarm source:

<Alarm source>	Description
-=HITEMP-ALARM=-	Indicates that a high temperature alarm has occurred
-=FROST-ALARM=-	Indicates that a frost alarm has occurred
-=<CUSTOM NAME>=-	For the alarm inputs 1 to 4 a custom name can be assigned
-=SHOREPOWER-ALARM=-	Indicates that the shore power has been removed
-=BATT-ALARM=-	Indicates that the battery voltage is low
-=MOVE-OUT=-	Indicates that the device has moved out of the set GPS geo-fence position
-=MOVE-IN=-	Indicates that the device has moved into the set GPS position
-=ANCHOR-ALARM=-	Indicates that an anchor alarm has occurred

The standard alarm names are as follows:
Alarm1=PIRALARM, Alarm2=BILGEALARM1, Alarm3=BILGEALARM2, Alarm4=HATCHALARM

Error SMS

The error SMS will be automatically sent by the device to the numbers of *Master1*, *Master2* and *Master3* if one of the possible alarm sources is enabled and an error has occurred at the corresponding sensor. The device will try to resend the SMS to the destination every 30 seconds as long as it is successful.

Error SMS from the *Yacht Sentinel* to the masters (contact phone numbers) Ex:

```
-=ERROR=-
<Error description>
YACHT Sentinel
MY BOAT
MMSI=680038636
```

SMS text	Description
-=ERROR=-	Indicates the SMS as an error SMS
<Error description>	Short description of the error (see next table)
YACHT Sentinel	Device logo
MY BOAT	Name of the boat
MMSI=680038636	MMSI set by the user (default 000000000)

The following shows the possible error descriptions sent by the *Yacht Sentinel*:

<Error description>	**Description**
SENSOR 1…4 NOT CONNECTED	Check the connection between the Yacht Sentinel and the sensor on input 1…4
SHORT CIRCUIT ON SENSOR 1…4	Check the contacts on the sensor connected to the shown input. They should be clean and not bypassed.

Tracking SMS

The tracking SMS will be automatically sent by the device if the tracking mode was previously enabled with the SMS instruction 'tracking=n,d (see parameter description)

Note: The tracking SMS will send to the person who initiated the tracking mode, but not to the masters. The device will try to resend the SMS to the destination every 30 seconds until it is successful.

SMS Text	**Description**
-=TRACKING-SMS=-	indicates as tracking SMS
YACHT Sentinel	Device Logo
MY BOAT	Name of Boat
MMSI=680038636	The MMSI set by user
GPSFIX:YES	YES' if device can receive GPS position, otherwise 'NO'
TIME=15:26:35	Time GPS position sent (GMT time)
DATE=05-11-09	Date GPS position sent (day-month-year)
LAT:50 50.5528N	Latitude
LONG:001 06.0977E	Longitude
SOG=33	Speed Over Ground (knots)
COG=74	Course Over Ground
REMAINING-SMS =5	Number of SMS left until tracking mode deactivated

Programming Unit

SMS Commands

The device is fully configurable via SMS commands. The following table shows each command with a short description. The permitted values/ranges are given in brackets. The subsequent pages show some examples of how to use these commands.

SMS command	Description
PARAMETER?	Request for a parameter SMS. The device will send a parameter SMS to the originator.
STATUS?	Request for a status SMS. The device will send a status SMS to the originator.
MASTER1=	Command to set the number for Master1. Default: NA [max. 18 characters]
MASTER2=	Command to set the number for Master2. Default: NA [max. 18 characters]
MASTER3=	Command to set the number for Master3. Default: NA [max. 18 characters]
TEMPALARM=	Command to enable or disable the temperature alarm. [YES/NO]
TEMPMAX=	Command to set the threshold temperature in °C for the temperature alarm. [0 … 100]
TEMPMIN=	Command to set the threshold temperature in °C for the temperature alarm. [-20 … 100]
MOVEALARM=	Command to enable or disable the move alarm. [YES/NO] **Note:** By enabling the move alarm, the current position will be saved as the 'home position' and the anchor alarm becomes disabled. The RADIUS parameter gives the permitted movement of the boat around the home position. If the boat moves out of the set radius, the *Yacht Sentinel* sends MOVE-OUT to the masters. If the boat moves back within 15m of the home position, the *Yacht Sentinel* sends MOVE-IN to the masters.
RADIUS=	Command to set the permitted movement in meters if the move alarm is enabled. [20 … 200] **Note:** The permitted range is from 20m to 200m. Since the *Yacht Sentinel* works internally with steps of 5m, the set value will be rounded to the last even multiple of 5 e.g. a radius of 27m becomes 25m.
ANCHORALARM=	Command to enable or disable the anchor alarm. [YES/NO] **Note:** By enabling the anchor alarm, the current position will be saved as the 'home position' and the move alarm becomes disabled. The parameter SWING gives the permitted movement of the boat around the home position. If the boat swings out of the set radius, the *Yacht Sentinel* sends ANCHORALARM to the masters.
SWING=	Command to set the permitted movement in meters if the anchor alarm is enabled. [20 … 200] **Note:** The permitted range is from 20m to 200m. Since the *Yacht Sentinel* works internally with steps of 5m, the set value will be rounded to the last even multiple of 5 e.g. a swing of 27m becomes 25m.
SMSTO=	Normally the device will send a parameter or status SMS to the originator of a received SMS. In some cases, it is useful to send the requested SMS to another destination. If so, then the destination number can be set by the parameter SMSTo=. Example: SMSTo=+44123456789
BATT=	Command to set the type of battery to either 12 V or 24 V or if 'off' set the supply type to shore power. See note 1
SUPPLYALARM=	Command to enable or disable the battery alarm.[ON/OFF] see note 1
SETDEFAULTS!	This command sets all parameters/settings to default values except master numbers and password

SMS command	Description
ALARM1= ALARM2= ALARM3= ALARM4=	Command to set the parameter for the alarm input 1…4. The command has three parameters: 1: ON/OFF enable or disable the alarm 2: NC/NO the connector sensor set to normally closed or normally open 3: Alarm text to indicate the alarm in the alarm SMS. All three parameters can easily be set with one command. Examples: Alarm4=off Alarm4=on,nc,alarmtext Alarm4=on,alarmtext It is possible to set just one two or all three parameters with one command. **Note:** All blank characters will be deleted and all characters uppercased.
OUT1= OUT2=	Command to set the output 1…2 ON/OFF enables or disables the output ALARM1/ALARM2/ALARM3/ALARM4 enables the output when the alarm occurs. Default = OFF Note: ON connects the output direct to ground and OFF makes it High impedance. Note: If the output is set to Alarm, the output is OFF until the alarm occurs.
NAME=	Command to set the name of the boat. This name will be sent in each SMS. Default: MY BOAT [max. 12 characters]
MMSI=	Command to set MMSI Maritime Mobile Service Identity (max 12 characters)
NEWPWD=	Command to change the default password for SMS commands. NEWPWD= must be followed by the 4 digit password you wish to set. Example NEWPWD=1111
TRACKING =n,d	Command to activate SMS tracking n = number of tracking SMS [0..20] d = time between each SMS[1..10] mins example to activate tracking mode: TRACKING=10,2 Example to deactivate: TRACKING=0

Note1:

For BATT set to 12/24 An alarm SMS will be sent if the battery voltage is below a defined threshold voltage for at least 30 seconds. Due to this delay, it is possible to start some heavy loads connected to the battery without a false alarm. The threshold voltage is 11V for a 12V battery and 22V for a 24V battery. The parameter SMS will show the parameter BOATBATT=..V with actual battery voltage

For BATT set to OFF: A shore power alarm SMS will be sent if the supply voltage for the Yacht Sentinel is under a defined threshold voltage for 30 seconds. The parameter SMS will show the parameter SHOREPOWER=ON/OFF to indicate a connected/disconnected shore power.

SMS Examples

To request a status SMS, send the following text to the *Yacht Sentinel*:

```
4444, status?
```

To request a parameter SMS, send the following text to the *Yacht Sentinel*:

```
4444, parameter?
```

To request a parameter SMS with a destination other than the originator number, send the following text to the *Yacht Sentinel*:

```
4444, parameter?,
SMSTo=+44123456789
```

To set the numbers Master1 and Master2 and request a parameter SMS to check the numbers, send the following text to the *Yacht Sentinel*:

```
4444, parameter?,
Master1=+44179123456,
Master2=+44123456789
```

To enable the alarm2 as a bilge alarm and disable alarm2, send the following text to the *Yacht Sentinel*:

```
4444,
alarm2=on,bilge,bilgealarm
alarm4=off
```

To enable the anchor alarm and set the permitted swing to 35 meters, send the following text to the *Yacht Sentinel*:

```
4444,
anchoralarm=on,
swing=35
```

To change the password for SMS commands to 1111 send the following text to *Yacht Sentinel:*

```
4444,newpwd=1111
```

To enable the tracking function for 10 SMS with an interval of 2 minutes, send the following text to *Yacht Sentinel:*

```
4444,tracking=10,2
```

Alarm Behaviors

- **Temperature Sensor (If fitted)**
  Alarms immediately. Timeout for next temp alarm 10 mins.
- **Hatch Sensor and PIR**
  Alarms immediately. Timeout for next hatch alarm/movement sensor, 10 mins.
- **Bilge Sensor**
  If both or either Bilge Sensors are immersed in water, then will send alarm after 1 minute.
- **Boat Battery**
  30 seconds after the voltage of the boat battery below the set level. Timeout for next boat battery alarm SMS is 10 minutes after the voltage is above the set limit.
- **Shore Power**
  30 seconds after Yacht Sentinel recognizes shore power is not connected. Timeout for next shore power alarm is 10 minutes after shore power is recovered.

Information

Technical Specification

General

· Casing measures approx. 12 x 7 x 3 cm
· Determination/transmission of GPS coordinates, speed, additional information from inputs
· Determination/transmission of GSM cell data and provider information (optional)
· Parameter configuration via SMS
· Current state is indicated via a red LED
· Ambient temperature: 0 … +50°C
· Storage temperature: 10 … +70°C

GSM

· Integrated GSM module: Telit GE865
· Suitable for all networks, frequencies (GSM850,EGSM900, DCS1800, PCS1900) and providers
UMTS not supported
· Usable with prepaid or contract SIM cards from all providers. No SIM lock
· Controlled via “normal” SMS. Acknowledgement via received SMS

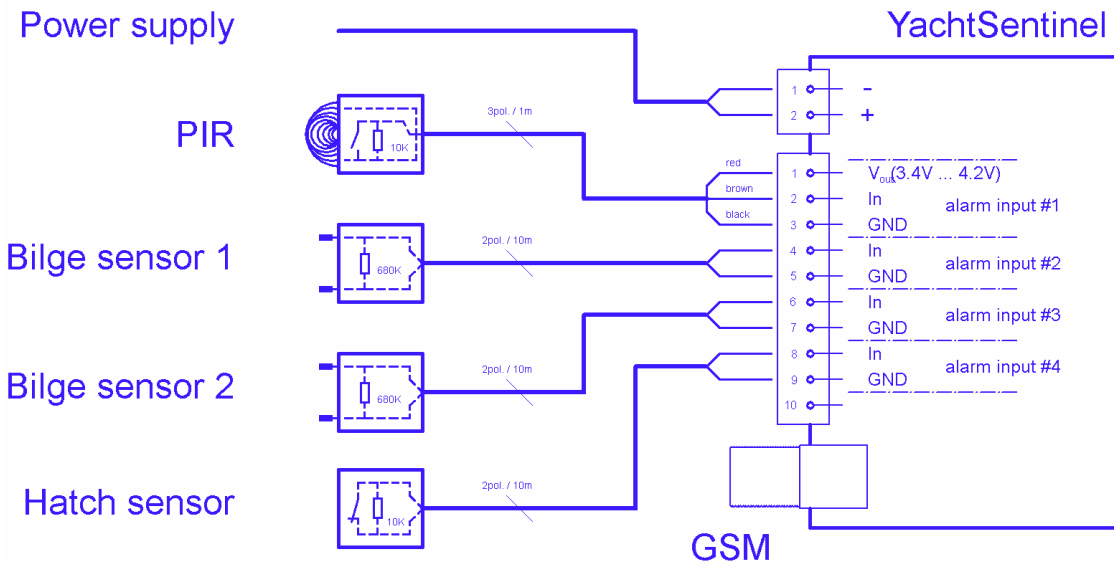
GPS

· SiRFstarIIII receiver with excellent GPS performance 5
· 20-channel GPS receiver
· Internal patch antennae

Input & Output Connections

The following diagrams show the input and output connections and their designations.

Inputs: (see revised bilge sensor resistor properties on next page)



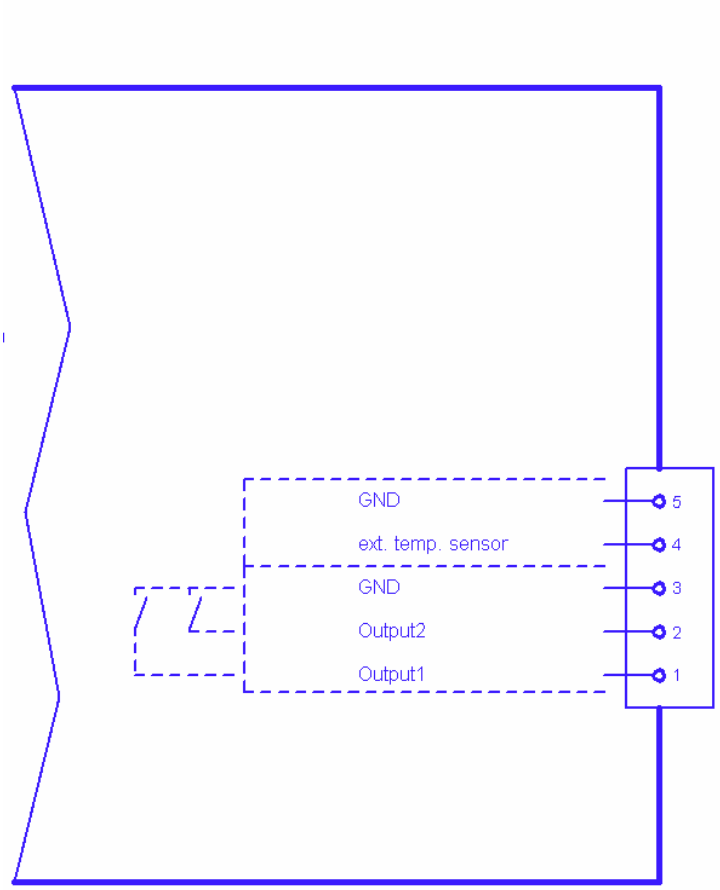
To ensure that defined levels are detected at the inputs all the inputs are internally ‘pulled up’ by 33k ohm resistors. The YS needs to detect if a sensor is connected otherwise it will send a ‘not connected’ alarm, this is done by putting a ‘tamper’ resistor in each of the sensors.

These are:

- Movement Sensor 10k ohm
- Bilge Sensors 100k ohm
- Hatch Sensor 10k ohm

If other sensors types are used, such as a pressure mat, the ‘tamper’ resistor must be placed across the input (as in the above diagram) otherwise the sensor will not be recognized.

Outputs



Outputs 4 & 5 are for temperature sensor only
Output 3 connects to common vessel ground
Output 1 & 2 are switched grounds to control your desired device (horn/strobe/contactor/relay,etc.) Switch grounds rather than power side to prevent damage to Unit. Take power directly to desired device via breaker/fuse.

Trouble Shooting

1. Check that you can send and receive a text from your SIM card by inserting into a mobile phone.

2. Open up the Yacht Sentinel (YS) case check inside that the internal battery connector is connected

3. Insert SIM card into YS

4. Connect the YS battery fly lead to your Boat Battery or the mains power supply adaptor to shore power.

5. You will get three fast flashes on the red LED every 3-4 seconds initially. You will then see a quick series of flashes as the YS registers with the network, the unit will then give 2 quick flashes every 3-4 seconds.

6. When the unit is flashing two times, then send an SMS to the YS **4444,status?**

7. Once this SMS is sent you will see the SMS being received by the YS as a series of quick flashes

8. The YS will then continue two (or one flash if GPS has been detected) every 3s-4s after a delay of 60s (depending on the network) you will see another series of quick flashes, this is the unit sending an answering SMS. You will then receive the SMS on your mobile. This will prove that communication is working with YS.

9. If you see a slow flash of around 1-2 seconds with a longer interval, this will mean that the battery is not fully charged.

10. Check the battery voltage of the boat and ensure that it is above 12vDC or that you have shore power

11. When the YS is charged enough, the unit will continue as in 6 above. It may take 2-3 hours for the battery to charge to the correct level.

Abbreviations & Definitions

Abbreviations:
SMS – Short Message Service – The messages sent to and from the unit
GSM – The frequency bands used by mobile phones
PIR – Passive Infra Red – Sensor that detects infra red light (occupancy sensor)
AC – Alternating Current – Type of electrical current used in shore power
DC – Direct Current – Type of electrical current from batteries
GPS – Global Positioning Service – Series of satellites around the earth to plot position
IR – Infrared – Light with longer wavelength than visible light
LED – Light Emitting Diode – Low energy light
SIM – Subscriber Identity Module – as in "SIM Card", a type of data storage for mobile devices
NO – Normally Open – used in reference to a device that has an open circuit until activated
NC – Normally Closed - used in reference to a device that has a closed circuit until activated
mA – mili amp – Unit of electrical energy measurement
V – Volt
MMSI - Maritime Mobile Service Identity – Nine digit system that uniquely identifies your vessel.

Definitions:
Bilge – Area of vessel below lower floorboards
Parameter – Settings to determine alarm limits
Status – Lets you see the actual status of battery states, position, course and speed.
Alarm – Notification sent to entered phone number(s) when sensor parameter is exceeded
Error – Notification sent to entered phone number(s) when there is a problem communicating with a sensor
Tracking – Varying position coordinates when vessel is in motion
Password – Series of 4 numbers entered into system to allow you secured access. Default password is 4444
Text Messaging – Maritime Mobile Service Identity – Nine digit system that uniquely identifies your vessel. Numbers can be obtained and registered through "SeaTow", "BOAT US" and "www.mmsiservices.com"
Master(s) – Phone numbers in system to be contacted upon alarm event